Status of WATR
Upgrades
C-band, S-band, UHF/VHF

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Status of WATR Upgrades

- **C-band**
  - **DES**
  - **TSPI**
- **S-band**
  - **MFTS & Triplex Upgrades**
    - **Direct Signal Inject**
    - **Metrum Recorders**
    - **Verterbi Decoding**
- **UHF/VHF**
  - **E & M Keying**
  - **UHF Switch Matrix**
  - **ISS System**

C-band

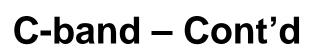- **DES replacement project in CDR and prototype phase**

- **DES Workaround**
  - **Low speed data for on orbit support**
    - **Moved to radar computer**

- **DES Radar Pedestal Slaving**
  - **Dedicated PC processing NORAD TLEs**
    - **Hot Switch selectable for DES/PC**

C-band – Cont'd

- **Tracking Space Positioning Information (TSPI)**
  - **Eliminates single point-of-failure**
  - **Prototype implementation and demo scheduled for 4th Qtr-FY01**
  - **Operational by end of FY02**
  - **Utilizes modern networking technology (100Mbit Ethernet)**
  - **Industrial strength PC's with dual redundancy**
  - **Replaces legacy and unsupported infrastructure components**
  - **Reduces cost of operation and system complexity**

S-band

- **TRIPLEX and MFTS**

  - **Direct Signal Inject Installed**

    - **Functional and tested on TRIPLEX**
    - **Tested on MFTS**
      - —Awaiting fiber optic link between ATF1 and ATF2 to be operational
      - —ETA mid Aug 01

  - **Metrum Recorders**

    - **Metrum working recording problem using the recorders at 192Kb with ranging on**

S-band

- **Veterbi Decoding for TDRSS data**
  - **Aydin Bit Sync (old) - still using**
  - **Avtec Bit Sync (new)**
    - **Slow to respond to signal strength fluctuations**
    - **Avtec addressing issues with s/w release**
    - **ETA 30 Aug 01**

S-band

- **Ranging Testing**
  - **Tape playback**
    - **Orbits 172, 173 and landing**
    - **STS - 102 and STS - 100**
  - **Spectrum up-link analysis**

- **Recommend**
  - **PSS testing at DFRC**
  - **Conduct testing with Endeavor**

UHF/VHF

- **UHF**
  - **E & M signaling installed**
    - **UHF Air-to-Ground**
    - **Weather Aircraft support systems**
  - **UHF Switch Matrix upgrades**
    - **Total system replacement**
    - **Switch selectable Digital VOX backup system**
    - **Switch selectable Digital Emergency Telephone Patch system**
  - **Future Upgrade**
    - **Automatic Best Receive Source Selection System**

ISS SYSTEM

– **Replaced DOS NOVA tracking software with NOVA for Windows**

   • **Compatible with automated NORAD TLE updates**

– **Installed 350 watt amplifiers**

   • **V1 prime/backup**

   • **V2 prime**

      —**V2 B/U 150W**

– **Installed high efficiency duplexors**

   • **V1 prime and V2 prime and back-up**

   • **Increased power efficiency ~ 20 percent**

– **Added C-band slaving**

   • **Yagi x4**

ISS SYSTEM

– **Future upgrades**

- **High efficiency duplexor on V1 back-up**
- **Quad Yagi's for V1 & V2 back-up**
- **Automated loading of NORAD TLEs**